

IN THE SPECIFICATION:

Please replace the first sentence of the application with the following amended sentence:

This application is a divisional of the co-pending, commonly assigned, United States Patent Application Serial No.: 09/314,701, filed May 19, 1999 and issued April 8, 2003 as U.S. Patent No. 6,544,517, which claims priority from U.S. Provisional Application No. 60/100,843, filed September 18, 1998.

Please delete the paragraphs beginning at page 5, line 1, and ending at page 7, line 15, in their entirety, and insert the following therefor:

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1. shows the DNA sequence (~~SEQ ID NO: 1~~)(SEQ ID NO: 68) and the amino acid sequence (residues 26-281 of SEQ ID NO: 2) encoded by the *E. chaffeensis* (*p28*) gene cloned in pCRIIOMP-1 protein (P28) determined chemically is underlined. Five amino acid residues at the N terminus of P28 which were not included in the *p28* gene, are indicated by boldface. Arrows indicate annealing positions of the primer pair designed for PCR.

FIG. 2. shows the restriction map of 6.3-kb genomic DNA including the *omp-1* gene copies in *E. chaffeensis*. The four DNA fragments were cloned from the genomic DNA (pPS2.6, pPS3.6, pEC2.6, and pEC3.6). A recombinant plasmid pPS2.6 has an overlapping sequence with that of pEC3.6. The closed boxes at the bottom show PCR-amplified fragments from the genomic DNA for confirmation of the overlapping area. Open boxes at the top indicate open reading frames (ORF) of *omp-1* gene copies with direction by arrows. Open boxes at the bottom show DNA fragments subcloned for DNA sequencing.

FIG. 3B shows one embodiment of the OMP-1 protein (SEQ ID NO: 2); FIG. 3A shows one embodiment of the OMP-1 polynucleotide (SEQ ID NO: 1).

FIG. 4B shows one embodiment of the OMP-1B protein (SEQ ID NO: 4); FIG. 4A shows one embodiment of the OMP-1B polynucleotide (~~SEQ ID NO: 1~~)(SEQ ID NO: 3).

FIG. 5A shows one embodiment of the OMP-1C polynucleotide (SEQ ID NO: 5); FIG. 5B shows one embodiment of the OMP-1C protein (SEQ ID NO: 6).

FIG. 6B shows one embodiment of the OMP-1D protein (SEQ ID NO: 8); FIG. 6A shows one embodiment of the OMP-1D polynucleotide (SEQ ID NO: 7).

FIG. 7B shows one embodiment of the OMP-1E protein (SEQ ID NO: 10); FIG. 7A shows one embodiment of the OMP-1E polynucleotide (SEQ ID NO: 9).

FIG. 8B shows one embodiment of the OMP-1F protein (SEQ ID NO: 12); FIG. 8A shows one embodiment of the OMP-1F polynucleotide (SEQ ID NO: 11).

FIG. 9B shows one embodiment of the OMP-1A protein (SEQ ID NO: 14); FIG. 9A shows one embodiment of the OMP-1A polynucleotide (SEQ ID NO: 13).

FIG. 10B shows one embodiment of a portion of the OMP-1R protein (SEQ ID NO: 16); FIG. 10A shows one embodiment of an OMP-1R polynucleotide (SEQ ID NO: 15) encoding such polypeptide.

FIG. 11B shows one embodiment of a portion of the OMP-1S protein (SEQ ID NO: 18); FIG. 11A shows one embodiment of the OMP-1S polynucleotide (SEQ ID NO: 17) encoding such polypeptide.

FIG. 12B shows one embodiment of a portion of the OMP-1T protein (SEQ ID NO: 20); FIG. 12A shows one embodiment of the OMP-1T polynucleotide (SEQ ID NO: 19) encoding such polypeptide (~~SEQ ID NO: 19~~).

FIG. 13B shows one embodiment of the OMP-1U protein (SEQ ID NO: 22); FIG. 13A shows one embodiment of the OMP-1U polynucleotide (SEQ ID NO: 21).

FIG. 14B shows one embodiment of the OMP-1V protein (SEQ ID NO: 24); FIG. 14A shows one embodiment of the OMP-1V polynucleotide (SEQ ID NO: 23).

FIG. 15B shows one embodiment of the OMP-1W protein (SEQ ID NO: 26); FIG. 15A shows one embodiment of the OMP-1W polynucleotide (SEQ ID NO: 25).

FIG. 16B shows one embodiment of the OMP-1X protein (SEQ ID NO: 28); FIG. 16A shows one embodiment of the OMP-1X polynucleotide (SEQ ID NO: 27).

FIG. 17B shows one embodiment of the OMP-1Y protein (SEQ ID NO: 30); FIG. 17A shows one embodiment of the OMP-1Y polynucleotide (SEQ ID NO: 29).

FIG. 18B shows one embodiment of the OMP-1Z protein (SEQ ID NO: 50); FIG. 18A shows one embodiment of the OMP-1Z polynucleotide (SEQ ID NO: 49).

FIG. 19B shows one embodiment of the P30 protein (SEQ ID NO: 32); FIG. 19A shows one embodiment of the P30 polynucleotide (SEQ ID NO: 31).

FIG. 20B shows one embodiment of the P30a protein (SEQ ID NO: 34); FIG. 20A shows one embodiment of the p30a polynucleotide (SEQ ID NO: 33).

FIG. 21B shows one embodiment of the P30-1 protein (SEQ ID NO: 36); FIG. 21A shows one embodiment of the p30-1 polynucleotide (SEQ ID NO: 35).

FIG. 22B shows one embodiment of the P30-2 protein (SEQ ID NO: 38); FIG. 22A shows one embodiment of the p30-2 polynucleotide (SEQ ID NO: 37).

FIG. 23B shows one embodiment of the P30-3 protein (SEQ ID NO: 40); FIG. 23A shows one embodiment of the p30-3 polynucleotide (SEQ ID NO: 39).

FIG. 24B shows one embodiment of the P30-4 protein (SEQ ID NO: 42); FIG. ~~2224A~~ shows one embodiment of the p30-4 polynucleotide (SEQ ID NO: 41).

FIG. 25B shows one embodiment of the P30-5 protein (SEQ ID NO: 44); FIG. ~~2225A~~ shows one embodiment of the p30-5 polynucleotide (SEQ ID NO: 43).

FIG. 26B shows one embodiment of the P30-6 protein (SEQ ID NO: 54); FIG. 26A shows one embodiment of the p30-6 polynucleotide (SEQ ID NO: 53).

FIG. 27B shows one embodiment of the P30-7 protein (SEQ ID NO: 56); FIG. 27A shows one embodiment of the p30-7 polynucleotide (SEQ ID NO: 55).

FIG. 28B shows one embodiment of the P30-8 protein (SEQ ID NO: 46); FIG. 28A shows one embodiment of the p30-8 polynucleotide (SEQ ID NO: 45).

FIG. 29B shows one embodiment of a portion of the P30-9 protein (SEQ ID NO: 58); FIG. 29A shows one embodiment of the p30-9 polynucleotide (SEQ ID NO: 57).

FIG. 30B shows one embodiment of a portion of the P30-10 protein (SEQ ID NO: 48); FIG. 30A shows one embodiment of the p30-10 polynucleotide (SEQ ID NO: 47) encoding such protein.

FIG. 31B shows one embodiment of a portion of the P30-11 protein (SEQ ID NO: 60); FIG. 31A shows one embodiment of the p30-11 polynucleotide (SEQ ID NO: 59).

FIG. 32B shows one embodiment of a portion of the P30-12 protein (SEQ ID NO: 62); FIG. 32A shows one embodiment of the p30-12 polynucleotide (SEQ ID NO: 61).

FIG. 33B shows one embodiment of a portion of the OMP-1H protein (SEQ ID NO: 52); FIG. 33A shows one embodiment of the OMP-1H polynucleotide (SEQ ID NO: 51).

FIG. 34 depicts the amino acid sequences alignment of six *E. chaffeensis* OMP-1s (SEQ ID NOS 12, 10, 8, 6, 4, and residues 26-281 of SEQ ID NO: 2, respectively in order of appearance) and *Cowdria ruminantium* MAP-1 (SEQ ID NO: 69). Aligned positions of identical amino acids with OMP-1F are shown with dots. The sequence of *C. ruminantium* MAP-1 is

from the report of Van Vliet et al (1994) Molecular cloning, sequence analysis, and expression of the gene encoding the immunodominant 32-kilodalton protein of *Cowdria ruminantium*. Infect. Immun. 62:1451-1456. Gaps indicated by dashes were introduced for optimal alignment of all proteins. Bars indicate semivariable region (SV) and three hypervariable regions (HV1, HV2, and HV3).

Please delete the paragraph on page 11, lines 17-28, and replace it with the following paragraph:

In another aspect, the present invention provides a polypeptide which comprises a fragment of the OMP1 protein, hereinafter referred to as "rOMP-1". The rOMP-1 polypeptide weighs approximately 31 kDa and comprises all but of the first 5 amino acids of mature OMP-1 protein. The rOMP-1 polypeptide comprises the amino acid sequence extending from amino acid 6 through amino acid 251 of the amino acid sequence shown in Fig.1, (residues 26-281 of SEQ ID NO: 2). The present invention also embraces polypeptides where one or more of the amino acids in the sequence extending from amino acid 1 or 6 through amino acid 251 Fig. 1 are replaced by conservative amino acid residues. The present invention also relates to variant of rOMP-1 that have an amino acid sequence identity of at least 95%, more preferably at least 97%, and most preferably of at least 99% with the amino acid sequence extending from amino acid 6 through amino acid 251 of the OMP-1 protein and which derivative binds to antibodies in sera from humans infected with *E. chaffeensis*.

Please replace the existing Sequence Listing with the attached substitute Sequence Listing. In accordance with C.F.R. §§ 1.821-1.825, also submitted herewith is a computer readable form of the substitute Sequence Listing and a supporting Statement.